

# ORDNANCE AND EXPLOSIVE RECURRING REVIEW

## MISSION TRAILS REGIONAL PARK SAN DIEGO, CALIFORNIA

FEBRUARY 2003



Prepared for:



**US Army Corps  
of Engineers** ®

Huntsville, US Army Engineering  
and Support Center

By:

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## 1.0 EXECUTIVE SUMMARY

This report documents the five-year review of past unexploded ordnance removal actions, historical records search and interviews, focusing on the portion of the former Camp Elliott currently known as Mission Trails Regional Park. The objective of the recurring review is to ensure that implemented ordnance response actions continue to be effective in protecting human health and the environment from risks associated with ordnance.

1.1 The primary objective of the recurring review was to determine whether site conditions had changed since the Environmental Chemical Corporation (ECC) removal actions (Final Report, October 1995), which may potentially impact public safety. Specific site conditions of concern were new construction, areas subject to erosion, areas with high recreational use and/or other land altering activities. Approximately 25 percent of the project area was visually inspected for erosion, evidence of ordnance, and changes in land use, as depicted in Appendix C. The Recurring Review Team visited the site from Monday April 17 through Thursday April 20, 2000 and evaluated areas based on the following criteria:

- Quantities and types of ordnance discovered during previously conducted removal actions;
- Location of areas with respect to accessibility and public use; and
- Potential for public exposure to ordnance hazards.

1.2 The five-year recurring review concluded that the ordnance and explosives clearance completed on September 12, 1995 is still protective of public safety. This does not mean that all of the ordnance used in the past has been completely detected and removed from Mission Trails Regional Park. Although personnel used the best available technology to remove all ordnance detected, the state of the current technology cannot provide a 100 percent certainty that all ordnance and explosives have been removed. Therefore periodic reviews of the site and education of individuals who enjoy using the park is necessary.

1.3 Evidence of OE, or concerns for exposure to OE due to erosion, new construction, recreational or other activities, storm damage or changes in land use was not identified. The review also found that conditions in the project area have improved since the OE removal was completed in 1995. The vegetation has grown back with vigor. Dense vegetation provides soil stability and limits human access to portions of the project area. Hiking trails and unimproved roads within the park are well maintained.

## 2.0 INTRODUCTION

This report presents the conclusions and recommendations for the recurring review of portions of the former Camp Elliott currently known as Mission Trails Regional Park. This recurring review was conducted at the Mission Trails Regional Park, San Diego, California from April 17 through April 20, 2000. The review was performed under the authority of the Defense Environmental Restoration Program (DERP), and is consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The following individuals from the U.S. Army Engineering and Support Center, Huntsville (USAESCH), the U.S. Army Corps of Engineers, Los Angeles District (CESPL), ZAPATAENGINEERING and the California Environmental Protection Agency (Cal/EPA) conducted the recurring review site visit:

Mr. Brad McCowan	Project Manager	USAESCH
Mr. William Veith	OE Safety Specialist	USAESCH
Mr. Wayne Shaw	OE Safety Specialist	USAESCH
Mr. James Walker	OE Safety Specialist	USAESCH
Mr. David Horvath	Site Development	USAESCH
Mr. BJ Allen	OE Safety Specialist	CESPL
Ms. Yolanda Hubbard	Project Manager	ZAPATAENGINEERING
Mr. Jason Shiflet	Geologist	ZAPATAENGINEERING
Ms. Holly Kress	Public Participation Specialist	Cal/EPA
Ms. Katherine Leibel	Project Manager	Cal/EPA

## 2.1 PURPOSE

The purpose of a recurring review is to ensure that implemented ordnance response actions continue to be effective in protecting human health and the environment from risks associated with ordnance.

2.1.1 This report documents the five-year review of past unexploded ordnance removal actions, historical records search, and interviews, focusing on the portion of the former Camp Elliott currently known as Mission Trails Regional Park.

2.1.2 Ordnance response actions are conducted consistent with CERCLA and the NCP. A recurring review, which should occur no less than every five years, is conducted to determine if previous response actions continue to be protective of human health and the environment. Protectiveness is achieved when the potential for harm is reduced or managed. Protectiveness is maximized when potential for harm is minimized (See Appendix A for Protectiveness Assessment).

2.1.3 Removal actions are selected responses based on the removal design plan. In the case of Mission Trails the removal action consisted of electromagnetic subsurface and surface sweeps, brush/vegetation thinning, and removal/disposal of 779 small arms, 620 UXO and 68, 975 lbs of OE-related and Non-OE scrap.

## 2.2 PREVIOUS RELATED SUBMITTALS

2.2.1 In 1986 the survey for the “*Report of Ordnance Contamination, Risk Assessment and Clearance Alternative Analysis on the Former Camp Elliott*” was conducted and the report published for the U.S. Army Engineering and Support Center, Huntsville (USAESCH) by DJG, Inc., Dynamic Systems, Inc., and UXB International, Inc.

2.2.2 On April 27, 1988 DJG, Inc., Dynamic Systems, Inc. and UXB International, Inc. completed a “*Feasibility Study of Remedial Action Alternatives for Conventional Explosive Ordnance Items on the former Camp Elliott.*”

2.2.3 In September 1991, Dames & Moore, Inc. submitted to the Army Corps of Engineers, a report titled, “*Final Environmental Assessment Ordnance Clearance, Mission Trails Regional Park, San Diego, California.*” The assessment was part of the Defense Environmental Restoration Program (DERP), described in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The report evaluated the potential impact of the proposed ordnance clearance remediation alternatives on the environment. The alternatives included;

- Alternative 1 – No action;
- Alternative 2 – Electromagnetic subsurface and surface sweeps in conjunction with 60-65 percent brush/vegetation removal;
- Alternative 3 – Electromagnetic subsurface and surface sweeps in conjunction with 35 percent brush/vegetation removal, and
- Alternative 4 – Ordnance removal efforts.

2.2.4 Of the four potential response alternatives listed in section 2.2.3, Alternative 4, the ordnance removal alternative, was agreed to as the preferred response.

### **3.0 SITE HISTORICAL BACKGROUND**

3.1 During the First World War, the U.S. Army used some of the area as artillery and machine gun ranges. No permanent structures remained after demobilization. In addition, a review of real estate records (deeds, leases, and/or easements) did not reveal any documentation relative to the areas use. The property was relatively unused during the 1920's and 1930's.

3.2 In 1934, the Marine Corps leased 19,298 acres to use for training areas. A few makeshift sheds were erected. The land was used for artillery, anti-aircraft and machine gun firing practice and operated six to eight months out of a year.

3.3 Following the outbreak of World War II in Europe in September 1939, the U.S. Military began to develop the area and established Camp Elliott as a Marine Corps Training Center.

3.4 Originally designated Camp Holcomb, construction of the military facility began in early 1940 on the mesas to the north and east of Murphy Canyon. On June 14, 1940, the training center was officially renamed Camp Elliott in honor of Major General George F. Elliott, Marine Corps Commander from 1902 to 1910. Land acquisition for Camp Elliott was accomplished through a Declaration of Taking on April 8, 1941. At this time, 19,298 acres were acquired. The base was later expanded to a total of 32,000 acres.

3.5 In June 1941, the Second Marine Division moved into Camp Elliott. The central area of Camp Elliott was just north of the Mission Trails project area, in an area now known as the Miramar Marine Air Station. The Headquarters Command, the Fleet Marine Force Training Center, the Troop Training Unit, Marine barracks and Base Depot were quartered in the central area of Camp Elliot. The Training Center dominated the camp. In little more than a year, the Marines trained and dispatched to combat zones over 50,000 officers and men. In addition to infantry schooling and miscellaneous specialist schools, subsidiary camps were used for training tank crews (Jacques Farm), parachutists (Camp Gillespie), scouts and snipers and officer candidates (Green's Farm), and a final tune-up camp for replacement battalions awaiting shipment overseas (Linda Vista).

3.6 By August 1942, the Tank School at Jacques Farm was organized. At the beginning of 1944, Jacques Farm was the only school for tankers operated by the Marine Corps, except for a few attached to the First Division. Fifty men per week were chosen from a list of volunteers, then tested and divided into the Maintenance and Operations school. The Maintenance schools were on a 12-week schedule, while the Operations, school was on an eight-week schedule. The course consisted of field maneuvers including tank maneuvering and weapon firing.

3.7 Weapons training at Jacques Farm included maintenance, repair and marksmanship for 75mm and 37mm weapons, 0.50 caliber machine guns, grenades, anti-tank rocket firing and placement of mines. Weapons training for other camps included field firing of every weapon used by the Marines, from 0.22 caliber rifles to 155mm field artillery weapons, as well as all types of demolitions, mines (training, non-explosive) and explosives. Twenty-five ranges were laid out inside Camp Elliott. Some of the combat ranges were the same ones used by the Marines since 1934, but most were new ranges, some with electronic advances such as the \$100,000 electrically controlled moving target anti-tank range.

3.8 In 1944, the Marines relocated to Camp Pendleton in northern San Diego County, and control of Camp Elliott was turned over to the Navy, who used the camp as a training and redistribution center until 1953. Weapons training was not performed during this period. From 1953 to 1960, various other military units used the camp, including the Navy Rehabilitation and Retraining Center, Naval Supply Center, and the Marine Corps Reserve Training Center. In 1960, Camp Elliott was closed and 7,709 acres (parts of the mesas in the northern sections) were transferred to the U.S. Air Force. The Admiral Baker Recreation Center and the Army Reserve Center were established at the former Jacques Farm Camp site, while the U.S. Military no longer needed the remaining portions of Camp Elliott.



## **4.0 MILITARY INVOLVEMENT**

### **4.1 TRANSITION FROM MILITARY TO CIVILIAN USE**

4.1.1 Post-war population growth began to affect the Tierrasanta and Mission Trails sites by the 1960's. In June of 1960, 43 square miles of former Camp Elliott, which still belonged to the federal government, was annexed by the City of San Diego. Prior to this annexation, all of Camp Elliott property had belonged to the County of San Diego.

4.1.2 In 1962, the General Services Administration (GSA) announced that it would solicit bids for the sale of 3,950 acres of former Camp Elliott land the following year. By this time, the City of San Diego had developed a master plan that projected a population of 40,000 residents for Tierrasanta when fully developed.

4.1.3 The City of San Diego wanted to acquire 405 acres for neighborhood and community parks, 1,220 acres for Mission Trails Park, and 155 acres as rights-of-way for major streets into the area. In addition, the San Diego Unified School District wanted 383 acres for 11 school sites. In 1965, it was announced that an additional 1,080 acres of surplus lands on Camp Elliott was for sale.

4.1.4 By 1968, the majority of the mesa tops north of Mission Valley that lie within the site had been sold and were slated for development. A Navy housing complex had been built on a portion of the western mesa top adjacent to Murphy Canyon and Christiana Community Builders, who held a total of 2,800 acres, owned the surrounding area. In the spring of 1970, Christiana announced proposed construction of Tierrasanta, a master planned community expected to contain 11,000 dwellings. In October 1970, the subdivision was formally opened and eight months later, approximately 1,200 single-family homes worth \$436 million had been sold. To date, over 6,000 homes have been constructed with an estimated value in excess of \$1 billion.

4.1.5 Established in 1974, Mission Trails Regional Park is one of the largest urban parks in the United States.

### **4.2 MILITARY ORDNANCE CLEARANCE OPERATIONS PRE-1980**

4.2.1 Several clearance efforts, conducted by various branches of the U.S. Armed Forces, are recorded for this area. The U.S Navy conducted an ordnance clearance operation in 1964, the U.S. Marine Corps conducted a second ordnance clearance operation in 1965, and the U.S. Army conducted a third ordnance clearance operation in 1973. No information is available on the Navy or Marine clearance operations. The following limited information on the Army clearance is available:

- The sweep was conducted from 16 October to 30 November 1973.
- Approximately 800 acres were searched on the western slope of Fortuna Mountain.
- A total of 93 ordnance-related items were found.

### **4.3 MILITARY ORDNANCE CLEARANCE OPERATIONS POST-1983**

4.3.1 Two major clearance efforts were conducted after a fatal accident occurred in 1983. Three young boys from the Tierrasanta Community found an unexploded 37mm high explosive (HE) projectile. Two of the boys were killed and the third child was injured in an accidental explosion. Investigation of the incident concluded that the boys were playing with the item when it exploded. Concern for public safety has been a highly sensitive issue since this accident.

4.3.2 The U.S. Navy Explosive Ordnance Disposal Mobile Unit Three (EODMU THREE) conducted two clearance operations, one in 1984 and one in 1985.

4.3.3 The following information about the 1984 clearance effort was stated in a memorandum from the Commanding Officer, EODMU THREE to the Commander, Explosive Ordnance Disposal Group One (COMEODGRUONE).

- A total of 326 acres was searched during this clearance effort. The operations were conducted from 9 January through 27 April 1984 using both Navy and Marine Corps personnel.
- Test grids measuring 50 feet by 100 feet were laid out in terrain with slopes varying from 10 degrees in low grassy areas to 40 degrees in heavy brush areas. Heavy brush limited searches to trails and roads.
- Search effectiveness probability (SEP) was measured for the first search pass of visual search effort. The presence of planted items increased workers' motivation. SEP for the first pass reported as approximately 70%.
- A recommendation of this clearance effort was that an ongoing education program for the area residents would be most important measure in preventing more accidents.

4.3.4 The following paragraphs summarize the 1985 clearance effort, as stated in a memorandum from the Commanding Officer, EODMU THREE to the Commander, EODGRUONE.

- Clearance operations began on 15 July 1985 and ended 26 September 1985. Normally, the ordnance search was conducted using three visual sweep teams and one electronic search team. Personnel from the Navy's Transient Personnel Unit and Marine Corps' Camp Pendleton aided in the search. MK 26 Ordnance locators were used for the electronic searches, which were again limited to roads and trails because of heavy brush.
- The areas swept were the entire Villa Trinidad/Villa Martinique Canyon area, Greenbelt Park, portions of the wooded perimeter of Admiral Baker Field.
- Granada Canyon, and open space adjacent to Murphy Canyon Navy Housing. A total of 322.41 acres were swept.
- Search effectiveness probability was tested for visual effort. Team Leaders placed expended pieces of ordnance in the area to be searched daily, which motivated the

workers to look carefully for ordnance. As a result, the reported SEP for the first pass sweep was 90.11%.

- A total of 215 items were recovered. Of this total, 158 items were located visually, 56 were located electronically, and a resident turned one in. Eight items, located visually, were live.
- The memorandum concluded by stating that ordnance would continue to be found in both unswept and swept areas because of erosion and changing vegetation patterns. The memo recommended that the best prevention for future accidents would be a continuing education program on ordnance awareness for residents of Tierrasanta.

## **5.0 PUBLIC INVOLVEMENT**

5.1 A public meeting was held in May 1986 to inform the residents of Tierrasanta about the Corps of Engineers' planned feasibility study to develop and evaluate remedial action alternatives addressing unexploded ordnance in the area.

5.2 A presentation was made at a Tierrasanta Community Council meeting in November 1986, to discuss progress being made in the development and analysis of alternatives.

5.3 In the spring of 1987, after the preliminary alternatives were developed, a brochure was prepared and mailed to all Tierrasanta residents.

## **6.0 PROPERTY ASSESSMENT**

### **6.1 USACE INVESTIGATION**

6.1.1 In 1988, the U.S. Army Corps of Engineers was tasked with developing a comprehensive plan to remove all unexploded ordnance (UXO) from both Tierrasanta and Mission Trails Regional Park. A feasibility study of remedial action alternatives for conventional explosive ordnance items on the former Camp Elliott was performed by DJG, Inc., Dynamic Systems, Inc. and UXB International, Inc. prior to awarding the removal contract.

### **6.2 RECORD OF DECISION**

6.2.1 The subsequent reports and associated documents were the basis for a Record of Decision (ROD) dated 17 October 1988 (Appendix F). The ROD supported the combination of alternatives recommended by the previous documents. The land mass was divided into sub-areas (A through F) to facilitate a comparison and analysis of alternatives. The report and ROD proposed different actions be employed for various sub-areas. Two sectors were part of federal properties, thus fencing in these lands was deemed the appropriate remedy pending future land use determinations. The remaining four sub-areas, totaling 1,364 acres, received plans for ordnance clearance sweeps including the use of electromagnetic locators.

- Sub-Area A includes the land north of the Highway 52 and adjacent to Miramar Marine Air Station. Portions of this area owned by the San Diego Unified School District (66.24 acres), CALTRANS (37.61 acres), and the U.S. Navy (63.49 acres). This area includes approximately 167 acres.
- Sub-Area B includes land within the proposed right-of-way for Route 52 extension across the Project Area. The area includes approximately 85 acres.
- Sub-Area C includes the land within the proposed Tierrasanta Norte residential development. This area includes approximately 358 acres.
- Sub-Area D includes the land within the Regency Hill (La Marage) residential development. The area includes approximately 58 acres.
- Sub-Area E includes undeveloped city- and U.S. Navy-owned land along the eastern boundary of the project area including a portion of Mission Trails Park. This area includes approximately 454 acres. The U.S. Navy owns the area north of Clairemont Mesa Boulevard; the City of San Diego owns the area south of Clairemont Mesa Boulevard.
- Sub-Area F includes the remaining open space in the canyons within and adjacent to developed residential areas. This group actually includes a number of smaller areas. The total area for Sub-Area F is approximately 774 acres.

## **7.0 MISSION TRAILS REGIONAL PARK**

Mission Trail Regional Park, one of San Diego treasured resources, reaches from Lake Murray north through Cowles Mountain and touches the communities of La Mesa and Santee. More than 95,000 visitors have enjoyed the Visitor Center and over 60,000 school children have toured the park since it opened in 1995. Its 5,800 acres gives all San Diegans an opportunity to spend time in the wilderness, hiking, fishing and camping.

## **8.0 CONTRACTED ORDNANCE CLEARANCE OPERATIONS**

### **8.1 ENVIRONMENTAL CHEMICAL CORPORATION (ECC)**

8.1.1 Environmental Chemical Corporation (ECC) was awarded Contract Number DACA87-92-D-0126, effective May 15, 1992, to perform “ordnance clearance” actions on that portion of the Former Department of Defense Property (FUDS), Camp Elliott, now called Mission Trails Regional Park of San Diego, California. ECC’s project objective was to locate, identify, and remove OE debris remaining after previous Department of Defense (DoD) related activities on a portion of the former Camp Elliott training range. The project was completed under one contract with 15 Delivery Orders and several modifications through the United States Army Corps of Engineers of Engineering Division, Huntsville Alabama. Administration was under the auspices of the United States Army Corps of Engineers, Los Angeles District.

8.1.2 Ordnance removal activities were conducted in 100-foot by 100-foot grids to a depth of three feet. During this clearance, laborers were hired to thin vegetation with guidance from the staff biologist. Afterwards, crews used magnetometers and Schonstedt GA-52 to perform a through search of the grids. All surface and subsurface anomalies were investigated and removed. The contractor performed a quality control search of ten percent of each grid prior to turning the grid over to the Government for a quality assurance check. The Government safety representative then performed a quality assurance check of the area prior to acceptance by the Government.

### **8.2 TIERRASANTA COMMUNITY, SAN DIEGO, CALIFORNIA**

8.2.1 Previous attempts to clear Tierrasanta of explosive hazards were only partially successful. Large-scale brush removal and subsurface magnetic detection was not performed and many ordnance items went undetected.

8.2.2 During the operation, UXO technicians located and removed more than 1,016 ordnance items, 3,787 small arms, 26,321 pounds of ordnance debris, and 142,253 pounds of trash. A Certificate of Clearance was issued by Environmental Chemical Corporation (ECC) stating that all ordnance and related debris located during clearance operations conducted by ECC during the period November 29, 1990 to May 2, 1994 had been removed from the work site and disposed of in accordance with contract requirements.

### **8.3 MISSION TRAILS REGIONAL PARK, SAN DIEGO, CALIFORNIA**

8.3.1 During the operation, UXO technicians located and removed more than 620 ordnance items, 779 small arms, 27,869 pounds of ordnance debris, and 41,106 pounds of trash. A Certificate of Clearance was issued by Environmental Chemical Corporation (ECC) stating that all ordnance and related debris located during clearance operations conducted by ECC during the period July 27, 1992 to September 12, 1995, had been removed from the work site and disposed of in accordance with contract requirements.

## 9.0 RECURRING REVIEW INVESTIGATION RESULTS

### 9.1 TERRAIN INVESTIGATIONS


The primary objective of the recurring review was to determine whether site conditions had changed since the Environmental Chemical Corporation (ECC) removal actions (Final Report, October 1995), which may potentially impact public safety. Specific site conditions of concern were areas of new construction, areas subject to erosion, areas with high recreational use, and/or other land altering activities. As depicted in Appendix C, approximately 25 percent of the project area was visually inspected for erosion, evidence of ordnance, and changes in land use. Areas evaluated during the four-day period were chosen based on the following criteria:

- Quantities and types of ordnance discovered during ECC's removal action;
- Location of areas with respect to accessibility and public use; and
- Potential for public exposure to ordnance hazards.

9.1.1 Prior to beginning fieldwork, local and state agency representatives identified as points of contact (Appendix B) were notified by ZAPATAENGINEERING on April 17, 2000 of the work schedule and objective of the recurring review. The areas observed during the recurring review were those areas cleared by ECC during the OE removal, as described in the *Final Removal Report, Camp Elliott Ordnance Removal Project Mission Trails Regional Park San Diego, California, Volumes 1 and 2* [ECC, 1995].

#### 9.1.2 Day 1 - Area I2

9.1.2.1 Area I2 – Aqueduct Road where two girls from the Tierrasanta community discovered ordnance-related scrap during the week of April 10, 2000. The site team concluded that the road appeared to have been recently graded, which may have brought the discovered ordnance-related scrap to the surface.

Date Taken:  Monday, 17 April 2000	
Photo ID:  Area I2	
Location/Direction:  32° 50' 31" N, 117° 04' 36" W Facing N10°E	
Description:  Approximately 400 m east of Aqueduct Road.	




### 9.1.3 Day 2 - Areas D8, F5-7, I2-5 and J6-7

9.1.3.1 Area D8 – The brush on the backside of Fortuna Mountain was thinned during ECC's removal action. This area is now covered with heavy vegetation and was too thick for site members to walk through. Minimal erosion was noted in the northeast corner.

9.1.3.2 Areas F5-7 – The area around the Shepard's pond was cleared of ordnance during ECC removal actions. Erosion was noted on the hillside. There was also evidence of this area being used heavily by the public. Surface debris noted at the site included scrap metal, cars, etc.

9.1.3.3 Areas I2-5 – Minimal erosion was noted throughout these areas, however, significant erosion was noted along roads.

9.1.3.4 Areas J6-7 – No evidence of erosion was noted at the bottom of Suycott Wash. Well-established grassland was evident. A large soil bank slump was noted on top of Powerline Road, which is located approximately 100-200 m from Aqueduct Road.

Date Taken:  Tuesday, 18 April 2000	
Photo ID:  Area D8	
Location/Direction:  32° 50' 49" N, 117° 03' 39" W Facing N5°W	
Description:  Dense vegetation located at the top of N. Fortuna Mountain.	

### 9.1.4 Day 3 – Areas E8-M1, F7, G6-7, H6-7, I7-9, J7-8, M8 and Q8


Areas E8-M11 – Fortuna Mountain's eastern boundary was covered with thick and dense vegetation through which the team was unable to walk. No erosion, other than on roads, was noted. Additional investigation activities if warranted, could be performed after a significant event such as fire or drought, which would thin out the dense vegetation and allow for inspection.

9.1.4.1 Areas F7, G6-7, H6-7, I7-9, J7-8, M8 and Q8 – Minimal erosion was noted in these areas except near the Canyon Valley. Vegetation is thick in some areas and sparse near rocky and grassy areas. Site members noted erosion on trails potentially due to bike usage.

Date Taken:	
Unknown	
Photo ID:	
Area E8-M11	
Location/Direction:	Unknown
Unknown	
Description:	East Fortuna Mountain.

#### 9.1.5 Day 4 – North and South Peaks, East Fortuna Mountain

Investigation was performed in accessible areas. The terrain on the east side of Fortuna Mountain is extremely steep and covered with dense vegetation. Approximately 55 to 65 percent of the east side is impassible due to steep rugged terrain and dense vegetation. Accessible areas trails and roads were visually searched. Approximately 25 percent of accessible areas were visually checked. No ordnance related material or UXO were found. Based on historical records existing grassland was used as a bivouac site for military personnel. Historical records do not indicate any other activities such as firing points for tanks, mortars, artillery or use as a maneuver area. Approximately 25 to 35 percent of the grassland was walked and visually searched. No evidence of OE-related materials or UXO were found.

Date Taken:	
Thursday, 20 April 2000	
Photo ID:	
Unknown	
Location/Direction:	32° 49' 48" N, 117° 04' 03" W Facing S50°W
Description:	
Erosion at South Suycott Wash caused by bike trails.	

## **9.2 ORDNANCE-RELATED INCIDENTS**

The San Diego Fire Department Metro Arson Strike Team (SDFDMAST) and the US Army 710<sup>th</sup> EOD Company were contacted by ZAPATAENGINEERING to determine if there had been any incident responses over the past five years in the Mission Trails area. The only documented incident consisted of a response by the SDFDMAST to a call where two girls from the Tierrasanta area discovered OE scrap on Aqueduct Road during the week of April 10, 2000. No incidents were recorded by the US Army 710<sup>th</sup> EOD Company.

## **9.3 BIOLOGICAL**

Brush removal was a major part of the Mission Trails operation for ECC. The ECC biologist developed a Comprehensive Selective Brush Clearing Plan for the removal action, which listed all plants in the Mission Trails Regional Park and the percentage of all plants within each habitat that could be removed during the subsequent removal process, if necessary. The staff biologist also designed a “reduced brushing” plan to produce minimal effects to biological resources while allowing maximized results from ordnance sweep efforts. The following mitigation measures were used during brush removal;

- Removal of no more than 35% of the vegetation in any one habitat;
- Avoidance of sensitive habitats during sensitive species’ reproductive seasons;
- Phasing ordnance removal activities to distribute adverse effects over the entire length of the contract; and
- Requiring that a full-time biologist be present during all phases of the project.

## **9.4 PUBLIC EDUCATION**

In April 2000, ZAPATAENGINEERING conducted 104 personal interviews at the Mission Trails Regional Park over a three-day period to determine the public awareness of the former military use of the Park, the potential to encounter ordnance, and measures to take if ordnance is uncovered. Blank survey forms were also left at the Park’s Visitor Center for park users to complete at their convenience. Nine Visitor Center surveys were completed and submitted to ZAPATAENGINEERING. Interview summaries are included in Appendix D.

9.4.1 During the site investigation the team learned that the Mission Trails Regional Park maintains a website ([www.mtrp.org](http://www.mtrp.org)) which provides general information regarding military use of the Park (Appendix E). However, the Recurring Review Project Team found no signage and little educational materials at the park informing users of the potential to encounter ordnance.

## 10.0 CONCLUSIONS AND RECOMMENDATIONS

The five-year recurring review concluded that the ordnance and explosives (OE) clearance completed on September 12, 1995 is still protective of public safety. No evidence of OE concerns was found due to erosion, new construction, recreational or other activities, storm damage or changes in land use. The reviews also found that conditions in the project area have improved since the removal was completed in 1995. The vegetation has grown back with vigor, providing soil stability and limiting human access to portions of the project area. Hiking trails and unimproved roads within the park are well maintained. Dense vegetation in many areas around Fortuna Mountain makes it virtually impossible to access these areas outside of using existing roads and trails. Because of this situation potential exposure to OE is very limited. If vegetation is removed intentionally, making new roads or trails, or unintentionally, i.e. fire, then individuals in these newly accessible areas may have the potential of encountering OE items. The Recurring Review Project Team recommends continuing several programs related in educating the community and the establishment of several new programs to ensure continued public safety.

### 10.1 CONTINUED PROGRAMMING

**10.1.1 Ordnance Awareness Training in Schools** – Continue public outreach and ordnance awareness training in the community schools at least annually. The San Diego Fire Department has experience in giving this training. Other Points of Contact (POC) for training are the U.S. Army 710<sup>th</sup> EOD Company, Navy EOD, Marine EOD, or the US Army Corps of Engineers.

**10.1.2 Ordnance Awareness Training for Parents** – Continue to provide awareness training concerning the potential unexploded ordnance problem to the parents living in the community. This training should focus on the hazards of allowing their children to play unsupervised in Mission Trails Regional Park.

**10.1.3 Public Information** – The U.S. Army Corps of Engineers should continue to provide updates (concerning the Former Camp Elliott) when available, to the local Tierrasanta public library and San Diego Park authorities.

**10.1.4 Monitor Vandalism** – The City of San Diego and Mission Trails Park Authorities should walk the Mission Trails Park to check the condition of warning signs, check the condition of the vegetation, and look for any excavations areas on an annual basis, as a minimum.

### 10.2 SUGGESTED IMPROVEMENTS

**10.2.1 Habitat Management Plan** – The City of San Diego and Mission Trails Regional Park authorities should incorporate ordnance concerns into their Habitat Management Plan.

**10.2.2 Mission Trails Regional Park Visitor Center** – The U.S. Army Corps of Engineers should provide one hard copy and two CD ROMS of the community information to park authorities.

**10.2.3 Contractor and Volunteer Work in Mission Trails Regional Park** – The U.S. Army Corps of Engineers should assist the City of San Diego and the Mission Trails Regional Park

authorities in developing a safety briefing advising of the potential ordnance hazards and the precautions to be taken while working in the park. This briefing should be given to all contractors and volunteers working in the park on projects where digging or grading of the site might unearth unexploded ordnance.

**10.2.4 Establish Point of Contact (POC)** – The U.S. Army Corps of Engineers should perform another site investigation after an additional five-year interval to revalidate the clearance results. The Corps of Engineers will establish a POC that will monitor all of the ordnance-related incidents reported in the community of Tierrasanta and Mission Trails Regional Park. The POC will periodically check the canyons in the area to see if erosion is becoming a problem. If changes occur, the POC may recommend that the recurring review timeframe be reduced.

**10.2.5 Report of Ordnance Activities** – The U.S Army Corps of Engineers’ POC will brief the Tierrasanta Community Council, San Diego City Manager and Mission Trails Regional Park Authorities at least once a year concerning any ordnance activities reported in the area.

**10.2.6 Baseline of Erosion** – The U.S. Army Corps of Engineers should develop a photographic baseline of erosion-prone areas, the Shepard’s Pond hillside, roads, (slough-off on top of Powerline Road) and canyon valleys (See Appendix C).

**10.2.7 Implementation** – The U.S. Army Corps of Engineers, the City of San Diego, Mission Trails regional Park Authorities, and the State of California should develop an “Action Plan” to include a “Responsibility Matrix” for implementation of the above-identified recommendations.

**10.2.8 Fire Response Action Plan** – The San Diego Fire Department should notify the U.S. Army Corps of Engineers, L.A. District (CESPL) in the event of any large brush fire at the Mission Trails Regional Park. This will afford the CESPL a unique opportunity to explore the burned area for evidence of OE without having to physically remove vegetation.

**10.2.9 Educational Signage** – The U.S. Army Corps of Engineers should add additional informational signs throughout the Mission Trails Regional Park to increase public awareness of park history.

**10.2.10 Surface Ordnance Removal** – The U.S. Army Corps of Engineers should perform a surface clearance sweep of the grassland that are accessible to the public that are located near the East Fortuna Mountain and the established S52 boundary to the north.

## 11.0 REFERENCES

- Dames and Moore. 1991. *The Final Environmental Assessment Ordnance Clearance, Mission Trails Regional Park, San Diego, California*. Prepared for Army Corps of Engineers.
- DJG, Inc., Dynamic Systems, Inc., and UXB International, Inc. 1986. *Report of Ordnance Contamination, Risk assessment and Clearance Alternative Analysis on the Former Camp Elliott*. Prepared for the U.S. Army Engineering and Support Center, Huntsville (USAESCH).
- DJG, Inc., Dynamic Systems, Inc. and UXB International, Inc. 1988. *Feasibility Study of Remedial Action Alternatives for Conventional Explosive Ordnance Items on the former Camp Elliott*. Prepared for the US Army Corps of Engineers.
- Environmental Chemical Corporation. 1995. *Final Removal Report, Camp Elliott Ordnance Removal Project Mission Trails Regional Park San Diego, California, Volumes 1 and 2*. Prepared for the Department of the Army Los Angeles District Corps of Engineers.

**APPENDIX A**  
**Protectiveness Assessment**

## PROTECTIVENESS

A site contaminated with ordnance has three major factors that must be considered when evaluating the potential for harm and protectiveness. These factors are ordnance, site, and people. Each of these factors has components, which are used to give an accurate assessment of protectiveness. Protectiveness is achieved when the potential for harm is reduced and/or managed.

### ORDNANCE



Ordnance Density  
*How much?*



Ordnance Distribution  
*Where is it?*



Ordnance Sensitivity  
*How stable?*

**Ordnance Density** – Ordnance density is an estimate of how many ordnance items (i.e. mortars, rockets, grenades, etc.) exist per acre. Ordnance reduction can be used as a direct measure of project benefits.

**Ordnance Distribution** – Ordnance distribution is an estimate of where the highest concentrations of ordnance items exist. This is beneficial only if the response action (i.e. removal, surface clearing, etc.) leaves a safer condition than before the project is completed. For example, removal of ordnance above one foot below ground surface may be protective for only a surface use of the site.

**Ordnance Sensitivity** – Some ordnance is more sensitive (easier to accidentally detonate) than others. This characteristic is useful to describe the seriousness of the problems caused by ordnance contamination. There is little potential for improvement of this component.

### SITE



Site Access  
*Ease of use*



Site Use  
*Current/Planned*



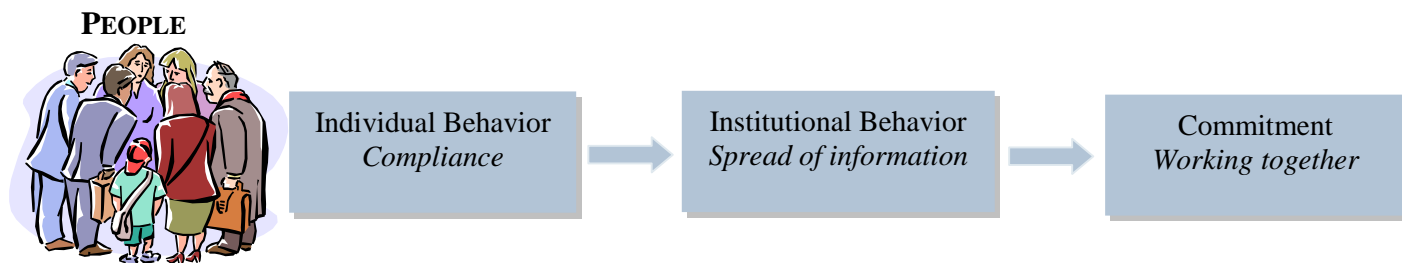
Site Stability  
*Potential for  
ordnance exposure*

**Site Access** – A measure of how easy it is to access the site and use it for personal or group activities. This component may indicate a direct improvement if limited site access is compatible with local needs. Limited access may also be an indicator of the seriousness of ordnance contamination, such as ordnance sensitivity.

**Site Use** – An indication of how site use may be dangerous. A modification of site use may be very protective if it is compatible with local needs. Use will determine potential site dangers especially when coupled with ordnance density and distribution.

**Site Stability** – Erosion or other dynamic forces may expose ordnance that would otherwise be totally inaccessible. A stable site is safer than a site prone to erosion. Other factors affecting stability include: frost heave, littoral processes (coastal forces), or human modifications to the existing condition (i.e. tillage techniques, capping or land-use modifications).





**Individual Behavior** – If people are willing to use the site in accordance with safety plans, avoid risky behaviors, and respond to found ordnance in accordance with contingency plans, nearly all of the potential for harm would be eliminated. The availability of information, proactive planning and cooperation are key indicators of benefits.

**Institutional Behavior** – Local institutions such as Building Departments, Zoning Boards, etc. are the best choice for disseminating vital site information, requiring compliance, and initiating enforcement actions in accordance with safety and contingency plans. Local agencies may also be able to discourage reckless development plans based on site contamination knowledge.

**Commitment** – The ability of individuals, local agencies, state and local regulators, along with the U.S. Army Corps of Engineers to commit to maximizing the protectiveness of the continuing ordnance response. A commitment to work together is far more protective than unilateral action by any single group.

By evaluating a combination of these factors and components, we can assess the relative protectiveness of a response and detect deterioration or improvement over time at any specific ordnance contaminated site. Individually, these factors will not give an accurate assessment of protectiveness. Considered together they paint a picture that can be the basis for corrective actions and proactive planning to avoid future harm or to serve as documentation that all is well.

**APPENDIX B**  
**Points of Contact**

<b>AGENCY</b>	<b>CONTACT</b>	<b>PHONE</b>
San Diego Fire Department Metro Arson Strike Team 1222 First Avenue, MS 120 San Diego, CA 92101	Mr. Jeffrey A. Carle Captain	(619) 236-6815
City of San Diego Mission Trails Regional Park One Father Junipero Serra Trail, MS 35 San Diego, CA 92119	Paul Filbert Senior Park Ranger	(619) 668-3276
710 <sup>th</sup> US Army Explosive Ordnance Division San Diego, CA	SGT Galawski	(619) 553-8500
City of San Diego 202 C Street, 11 <sup>th</sup> Floor San Diego, CA 92101	Mr. Jim Madaffer Councilman District 7	(619) 236-6677
Councilman Representative Jim Madaffer's Office	Ms. Leslie Webb	(619) 236-6677
City of San Diego Parks and Recreation Maintenance Assessment District	Mr. Kevin Haupt Manager	(619) 685-1360
City of San Diego Parks and Recreation	Ann Hicks Open Space District Manager	(619) 525-8286
City of San Diego Parks and Recreation 5201 Ruffin Road, Suite P San Diego, CA 92123	Ms. Barbara Simmons District Park Manager	(858) 495-5162
Varanus Biological Services Inc.	Mr. Bill Haas	(858) 536-8762
Department of Toxic Substances Control Office of Military Facilities 10151 Croydon Way Sacramento, CA 95827-2106	Mr. Jim Austreng State UXO Coordinator	
Mission Trails Regional Park Foundation, Inc 6919 Cibola Road San Diego, CA 92120	Dorothy Leonard	(619) 583-7695
City of Santee 10601 Magnolia Avenue Santee, CA 92071	Todd Galarneau	(619) 258-4100 Ext. 173

**AGENCY**

Department of Toxic Substances Control  
Southern California Region  
Office of Military Facilities  
5796 Corporate Avenue  
Cypress, CA 90630

**CONTACT**

Katherine Leibel

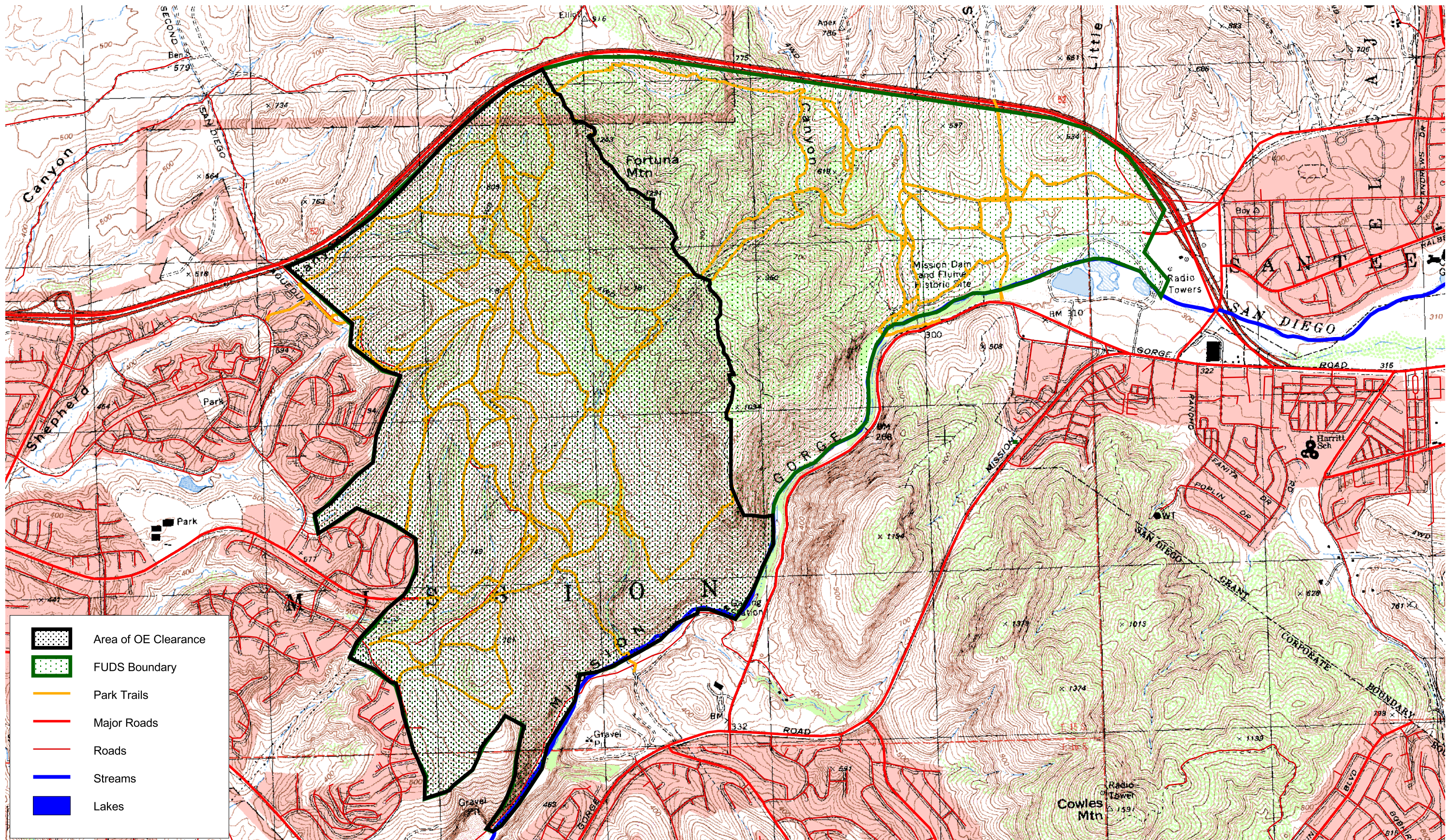
**PHONE**

(714) 484-5446

## **APPENDIX C**

### **Map and Photographs**





2000 0 2000 Feet



**ZAPATA ENGINEERING P.A.**

1100 KENILWORTH AVENUE  
CHARLOTTE, NC 28204  
E-MAIL: ZAPATA@ZAPENG.COM  
PHONE: (704) 358-8240  
FAX: (704) 358-8242  
WEB SITE: WWW.ZAPENG.COM

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U.S. ARMY ENGINEERING  
AND SUPPORT CENTER  
HUNTSVILLE, ALABAMA

Site Map  
Mission Trails Regional Park

PROJECT #:	PAGE #:	DATE:	DRAWN BY:	SCALE:	FIGURE:
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**DAY 1**  
**32° 50' 29" N and 117° 04' 31" W, S60°W**  
**500m East of Aqueduct Road, typical vegetation.**



**DAY 1**  
**32° 50' 29" N and 117° 04' 31" W, N60°E**  
**500m East of Aqueduct Road, typical vegetation.**



**DAY 1**  
**32° 50' 31" N and 117° 04' 36" W, N10°E**  
**400m East of Aqueduct Road, bare area with no signs of erosion.**



**DAY 1**  
**32° 50' 31" N and 117° 04' 38" W, N10°W**  
**350m East of Aqueduct Road, signs of slight erosion.**





**DAY 1**  
**32° 50' 21" N and 117° 04' 44" W, N60°W**  
**Access road near the beginning of Aqueduct Road (large area of erosion).**



**DAY 1**  
**32° 50' 25" N and 117° 04' 44" W, N10°E**  
**Aqueduct Road embankment starting to erode.**



**DAY 1**  
**32° 50' 21" N and 117° 04' 44" W, N60°W**  
**End of Access Road. Large erosional area.**





**DAY 1**  
**32° 50' 23" N and 117° 04' 43" W, N60°E**  
**Inside of gully near Access Road, 15' deep, 8-10ft. wide.**



**DAY 1**  
**32° 50' 20" N and 117° 04' 44" W, N60°W**  
**Erosion due to bike trails.**



**DAY 2**  
**32° 50' 49" N and 117° 03' 38" W, N10°W**  
**Top of N. Fortuna Mt., Suycott Wash looking north.**



**DAY 2**  
**32° 50' 49" N and 117° 03' 38" W, N50°W**  
**Top of N. Fortuna Mt., Suycott Wash looking northwest.**





**DAY 2**  
**32° 50' 49" N and 117° 03' 38" W, West**  
**Top of N. Fortuna Mt., Suycott Wash looking west.**



**DAY 2**  
**32° 50' 49" N and 117° 03' 38" W, S10°W**  
**Top of N. Fortuna Mt., Suycott Wash looking south.**



**DAY 2**  
**32° 50' 03" N and 117° 03' 43" W, S60°E**  
**South Suycott Wash; minor erosion.**



**DAY 2**  
**32° 49' 56" N and 117° 03' 41" W, N60°E**  
**South Suycott Wash; bare ground no erosion noted.**





**DAY 2**  
**32° 50' 49" N and 117° 03' 39" W, N5°W**  
**Top of N Fortuna Mt. (indication of vegetation size).**



**DAY 2**  
**32° 50' 54" N and 117° 03' 45" W, S60°E**  
**Top of N. Fortuna Mt.; bare spot, no erosion noted.**





**DAY 2**  
**32° 49' 46" N and 117° 03' 45" W, N60°E**  
**South Suycott Wash, minor erosion from trail.**



**DAY 2**  
**32° 50' 29" N and 117° 04' 44" W, S60°W**  
**Hill facing Hwy 52, 3 foot gully, 2 ft-4 ft wide.**



**DAY 2**  
**32° 50' 34" N and 117° 04' 57" W, N40°E**  
**Gully erosion caused by run-off from Hwy 52.**



**DAY 2**  
**32° 50' 34" N and 117° 04' 57" W, N50°E**  
**Bridge over gully near Hwy 52.**





**DAY 2**  
**32° 49' 50" N and 117° 04' 06" W, S50°W**  
**Suycott Wash, West hillside erosion area.**



**DAY 2**  
**32° 50' 54" N and 117° 04' 23" W, North**  
**Shepard's Canyon runoff erosion of small pond.**



**DAY 3**

**Hill facing Hwy 52 gully - widens to 6-7ft.**





**DAY 3**  
**32° 50' 29" N and 117° 04' 44" W, S60°W**  
**Hill facing Hwy 52 gully, water is undermining soil.**



**DAY 3**

**Hill facing Hwy 52 gully, which travels down entire slope of hill.**



**DAY 3**

**32° 49' 54" N and 117° 03' 20" W, N20°E  
Top of S. Fortuna Mt looking down San Diego River.**





**DAY 3**

**32° 49' 54" N and 117° 03' 20" W, N65°E**

**Top of S. Fortuna Mt., steep sides of Mission Gorge with dense vegetation.**



**DAY 4**

**32° 50' 28" N and 117° 04' 44" W, S55°E**

**Taken from the hillside directly opposite of bike trails, some erosion noted due to trails.**



**DAY 4**  
**32° 50' 26" N and 117° 04' 12" W, S80°E**  
**Suycott Wash, West side bike trail erosion.**



**DAY 4**  
**32° 49' 48" N and 117° 04' 03" W, S50°W**  
**South Suycott Wash, erosion due to bike trail.**





**DAY 4**  
**32° 48' 47" N and 117° 04' 05" W, N50°E**  
**South Suycott, Wash start of erosion due to bike trails.**

## **APPENDIX D**

### **Interview Summary**

## **INTERVIEW SUMMARY**

1. Were you aware that the Mission Trails Recreational Area was once used by the Department of Defense as a training/practice range and is now considered a Formerly Used Defense Site?

	<b>YES</b>	<b>No</b>	<b>TOTAL</b>
<b>RESPONSES</b>	48	67	115
<b>PERCENTAGE</b>	42%	58%	

2. Did you know that the US Army Corps of Engineers conducted an ordnance investigation and cleanup of the area?

	<b>YES</b>	<b>No</b>	<b>TOTAL</b>
<b>RESPONSES</b>	48	66	114
<b>PERCENTAGE</b>	42%	58%	

3. Have you or family members encountered signs, educational material or any type of information warning of the potential presence and danger of ordnance in the park?

	<b>YES</b>	<b>No</b>	<b>TOTAL</b>
<b>RESPONSES</b>	20	92	112
<b>PERCENTAGE</b>	18%	82%	

4. Do you hike or ride off established trails?

	<b>YES</b>	<b>No</b>	<b>TOTAL</b>
<b>RESPONSES</b>	40	73	113
<b>PERCENTAGE</b>	35%	65%	

5. Suspicious items that may be ordnance should NEVER be touched or disturbed. Have you encountered any suspicious items while hiking or biking in the park?

	<b>YES</b>	<b>No</b>	<b>TOTAL</b>
<b>RESPONSES</b>	2	110	112
<b>PERCENTAGE</b>	2%	98%	

6. Do you know who to contact if you or a family member discovers a suspicious item?

	<b>YES</b>	<b>No</b>	<b>TOTAL</b>
<b>RESPONSES</b>	61	53	114
<b>PERCENTAGE</b>	54%	46%	

7. Do you feel additional protective measures need to be taken by the Army to ensure that park users are aware of the potential presence of ordnance? What measures do you think would be beneficial?

	<b>YES</b>	<b>No</b>	<b>TOTAL</b>
<b>RESPONSES</b>	52	59	111
<b>PERCENTAGE</b>	47%	53%	

8. Additional Comments:

- a) Twenty-three people had comments regarding signs, including:
  - 1. More signs along trails and at entrance.
  - 2. More signs to assist local fire crews of potential ordnance.
  - 3. Need signs with emergency contact numbers if ordnance is encountered.
  - 4. Use different color signs at entrance of trails.
  - 5. A sign in front saying, "This is a Formerly Used Defense Site" would be helpful.
- b) Continue to keep people aware.
- c) More education, especially in schools.
- d) Need literature/pamphlets.
- e) Use the news media to make people aware.
- f) More information placed in visitors center.
- g) Perhaps on the Mission Trails "Trail Information" paper under *REMEMBER*, a sentence could be added about ordnance so people would be aware.
- h) More displays geared toward ordnance.
- i) Draw a silhouette of ordnance shapes.

## **APPENDIX E**

### **Excerpt from Mission Trails Regional Park Web Site**



## Information About US Military

[◀ BACK](#)

- [Military Uses](#)

**Military Uses** 1917-1960  
by Ruth Alter, Archaeologist

The military presence in Mission Trails Regional Park dates back to 1917, when U.S. Army personnel based at Camp Kearny a few miles to the west, used Fortuna Mountain as an artillery target as part of World War I training exercises. This practice was repeated when the area was reactivated as a military base in 1934, this time as Camp Elliott, a U.S. Marine Corps training center. Ordnance was fired at the mountain for the next ten years, when the land was turned over to the U.S. Navy. The Navy used the lands around Fortuna Mountain for infantry, tank and artillery training during World War II and the Korean War.

In 1960, about one-third of Camp Elliott's lands were declared excess holdings and were transferred to the General Services Administration. Between 1960 and 1963, some of this property was given to the City of San Diego, San Diego State University, and the San Diego Unified School District. Ultimately much of this land became part of Mission Trails Regional Park.

Unexploded ordnance was an unfortunate legacy of the military period. Hikers sometimes discovered unexploded materials along the trails, especially after rainy periods, and it became clear the ordnance posed a serious public safety hazard. In 1993, an intensive sweep of the area was conducted and literally tons of unexploded materials were removed.

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**APPENDIX F**  
**Record of Decision**



DEPARTMENT OF THE ARMY  
HUNTSVILLE DIVISION, CORPS OF ENGINEERS  
P. O. BOX 1600  
HUNTSVILLE, ALABAMA 35807-4301

REPLY TO  
ATTENTION OF

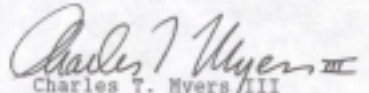
November 25, 1988

Office of the Division Engineer

TO ALL INTERESTED PARTIES:

The Record of Decision (ROD) for the Feasibility Study of Remedial Action Alternatives for Conventional Explosive Ordnance Items on the Former Camp Elliott, San Diego, California, has been signed by the Deputy Assistant Secretary of Defense (Environment). This was pursuant to the National Environmental Policy Act of 1969 (NEPA) and regulations of the President's Council on Environmental Quality for implementing NEPA (40 CFR Parts 1500-1508). A copy of the ROD is enclosed for your information.

Sincerely,

  
Charles T. Myers III  
Colonel, Corps of Engineers  
Division Engineer

Enclosure

RECORD OF DECISION

FORMER CAMP ELLIOTT  
SAN DIEGO, CALIFORNIA

BACKGROUND

Pursuant to Council on Environmental Quality Regulations implementing the National Environmental Policy Act (NEPA), this document records the remedial action decision for the unexploded ordnance and related debris contamination caused by previous DOD-related activities on a portion of the Former Camp Elliott Training Range. A Feasibility Study of Remedial Action Alternatives and an Environmental Impact Statement have been prepared for the site. Camp Elliott Reservation operated as a tank, anti-tank, and artillery training/practice range during the World War II-Korean War era. A portion of the Former Camp Elliott Reservation that now encompasses Tierrasanta was declared surplus property and transferred to developers in 1968. The community currently comprises over 6,000 residential units plus ancillary office, commercial and public service facilities. The project area includes 1897 acres of remaining open space in the Tierrasanta community. To facilitate comparison and analysis of alternatives, the open space within the project area was divided into sub-areas A, B, C, D, E, and F.

DECISION

During the conduct of the study, it became apparent that no single alternative was appropriate for the entire project area. Therefore, the recommended plan or preferred alternative consists of a combination of alternatives for the various sub-areas. Based on the findings and conclusions of the Feasibility Study, Environmental Impact Statement, and associated correspondence received in response to coordination of this document I have decided that the plan as recommended below be conducted.

Sub-Area A: The plan for this area involves reacquisition and fencing by the U.S. Government of the 167 acres adjacent to the Naval Air Station Miramar, North of the project area. The reacquisition will be accomplished pursuant to a non-CERCLA authority.

Sub-Area B: The plan for this area, which encompasses 85 acres, involves fencing along the southern right-of-way line of the proposed State Route 52. Fencing would occur once the California Department of Transportation (CALTRANS) has obtained legal right-of-way. This will effectively isolate both Sub-Areas A and B from the rest of Tierrasanta to the South.

Sub-Area C: The plan for this area (Tierrasanta Norte residential development, approximately 358 acres) involves ordnance clearance sweeps using electromagnetic ordnance locators, after selective manual removal of vegetation, in areas to remain as permanent open space (approximately 75 acres), and ordnance clearance sweeps using electromagnetic ordnance locators in the remaining undeveloped area disturbed by the developer.

Sub-Area D: The plan for this area (Regency Hill residential development, 58 acres) involves an ordnance clearance sweep, using electromagnetic ordnance locators, of approximately 23 acres which surround the developing area and form the faces for the mesa, and no action in the remaining area disturbed by the development.

Sub-Area E: The plan for this area (approximately 454 acres located along the eastern project boundary) involves 209 acres, presently U.S. Navy owned, and is not eligible for funding under the DERP formerly used sites program, and 245 acres where 3 separate actions are planned. The plan for the 245 acres is as follows: approximately 56 acres, previously burned, involves ordnance clearance using electromagnetic ordnance locators; 129 acres involves ordnance clearance using electromagnetic ordnance locators after selective manual removal of vegetation; and 80 acres involves ordnance clearance sweeps using electromagnetic ordnance locators and controlled burning for vegetation removal.

Sub-Area F: The plan for this area (approximately 774 acres of remaining open space in canyons adjacent to developed residential or commercial areas) involves ordnance clearance using electromagnetic ordnance locators after selective removal of brush by manual cutting and removal. This area will be given first priority for implementation.

#### OTHER ACTION

In addition to the plans identified above, a follow-up ordnance test sweep will be conducted one year after the initial clearance effort to monitor and/or verify the clearance effectiveness. Follow-up ordnance sweeps will be conducted based on the results of the one year follow-up test sweep efforts. Also efforts will be made to expand educational programs on unexploded ordnance within the community.

#### ALTERNATIVES CONSIDERED

In arriving at the decision to implement the various preferred remedial actions, several alternatives were considered. They were as follows: (1) Ordnance clearance using electromagnetic ordnance locators after selective manual removal of vegetation, (2) Ordnance clearance using electromagnetic ordnance locators after prescribed burning, (3) Limitation of certain types of development and/or placement of additional development restrictions, (4) Visual sweeps in conjunction with sub-surface electromagnetic detection, where possible without vegetation removal, (5) Restriction of access through signs and fencing, (6) Reacquisition of property by the Government, and (7) No action.



Each alternative was evaluated for each sub-area based on the following parameters: public safety, economic feasibility, technical feasibility, environmental issues, local public opinion, and Federal, State, and local restrictions. Environmental issues included biological resources, cultural resources, land-use, esthetics, air quality, water quality/erosion, recreation, socioeconomic, safety, and construction impacts. Alternatives that were considered to be environmentally preferable are alternatives listed in items 3, 4, 5, 6, and 7 above.

Based on the primary objective of the project (to protect public health, safety, and general welfare) and the alternatives analyses, the preferred alternatives listed in items 1 and 2 above are recommended for most sub-areas. Even though these alternatives were the more costly and presented significant, but short term, adverse impacts to the vegetation and wildlife, it was not technically feasible to effectively locate and remove ordnance items from the areas without the associated short term impacts.

#### MITIGATION

All practicable means to avoid or minimize environmental harm from the selected alternatives have been adopted. A preliminary cutting plan which minimizes impacts to vegetation has been developed. Prior to implementation, a comprehensive cutting plan will be prepared to assure that all feasible measures to minimize environmental impacts are incorporated into the project. A preliminary prescribed burn plan, considering fire intensity, frequency, duration, species composition, size, pattern, season, extent, weather, fuel, soil and site of the burn, and which minimizes impacts to vegetation, has been developed. Prior to implementation, a comprehensive burn plan will be prepared to assure that all feasible measures to minimize impacts are incorporated into the project.

Vernal pools which may contain the Federally endangered San Diego mesa mint will be avoided in any fence construction or prescribed burn activity. Prior to the unlikely event that vernal pool complexes containing the mesa mint need to be manually cleared of vegetation, coordination with the USFWS pursuant to the Endangered Species Act will be undertaken. Coordination with the USFWS will be conducted regarding those vernal pools containing mesa mint and ordnance contamination.

Every effort will be made to preserve the sensitive southern oak woodland, sycamores, and scrub oaks. All willow and post oak woodlands will be flagged by a biologist during project implementation. Precautions to keep these areas in an undisturbed condition will be taken. A qualified biologist will be on-site during project implementation to minimize adverse impacts on biological resources and to enforce the environmental mitigation commitments of the project.

Vehicle access within the project area will be limited to existing paved and dirt roads and foot paths. Cultural resource sites were found in Sub-areas A, B, and E. No impact from construction will occur in sub-areas A and B. A qualified archaeologist will be present during project implementation in sub-area E to assure that significant impacts to the site are avoided.

PUBLIC INVOLVEMENT

A thorough public involvement program has been conducted throughout the site evaluation process. Public concerns, such as safety, socioeconomic and environmental effects have all been carefully considered.

ENVIRONMENTAL COMPLIANCE

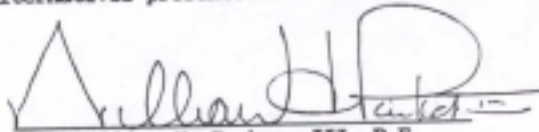
The environmental documentation has been prepared in accordance with NEPA. The project has appropriately considered all applicable environmental laws, executive orders, and other policies as required.

AUTHORITY

My decision as detailed above has been carefully made in consideration of environmental impacts and other essential parameters as described. The goals of the Defense Environmental Restoration Program for formerly used sites, public safety, fiscal responsibility, and environmental protection are best served by selection of the preferred alternatives presented in this document.

MIG 19 1993

Date



William H. Parker, III, P.E.  
Deputy Assistant Secretary of Defense  
(Environment)